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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,310	12/26/2001	Robert A. Wolff	C01-009	2747

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EXAMINER

SETH, MANAV

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/036,310 ✓

Applicant(s)

WOLFF ET AL.

Examiner

Manav Seth

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 05/21/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The amendment filed on 12 April 2005 has been entered in full.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 11, 12, 18, 19, 20, 21, 24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over, Anderson U.S. Patent No. 6,567,122 and further in view of Luster, U.S. Patent No. 5,715,051.

Claim 1 recites "an image apparatus having an image element connected to a processing element and memory". Anderson discloses in lines 5-8 and lines 40-45 of column 6 an imaging apparatus (digital camera) that consists of an image element connected to the computer (118, figure 1) built internally that consists of a processing element (344, figure 3) and a memory (346).

Claim 1 recites "a software process for compressing and reformatting the image data and information from the machine vision tool into the web-browser compatible form for transmission over a communication interface, interconnected to the processing element, to a human/machine interface device having a display, the web-browser-

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compatible image data and information being adapted for display on the human/machine interface device". Anderson discloses in lines 27-37 of column 8, lines 14-18 of column 10 and lines 41-56 column 12, also teaches of a web server (figure 9) and software process responsible for compressing and reformatting the image data and information into a web-browser-compatible form for transmission over a communications interface, interconnected to the processing element, to a human/machine interface device having a display, the web-browser-compatible image data and information being adapted for display on the human/machine interface device

Claim 1 recites "wherein the human/machine interface is adapted to display web-browser-compatible image data and the information on a plurality of user-selected screens". Anderson teaches in lines 34-38 of column 9 that a human/machine interface device can be a personal computer, wireless PCS phone or a network computer and apparently these devices are capable of displaying image data and information in web-browser-compatible image format.

Claim 1 recites "the processing element is adapted to perform a machine vision tool task while the human/machine interface device is disconnected from the communications interface". Anderson discloses in lines 46-55 of column 5 discloses that the image data and information can be transferred to human machine interface device at any time which makes it apparent that processing element can perform operations independently of the connection to the human/machine interface.

Claim 1 recites "a machine vision tool for performing a machine vision process on the image data". Anderson discloses multiple software processes (figure 9) that can be

run on the processing element to control the functions and parameters of the camera in lines 52-55 of column 6, lines 1-4 of column 7 and lines 36-42 of column 15. Anderson discloses an image apparatus that is basically the same as recited in claim 1 except that Anderson does not teach this image apparatus being used in machine vision systems.

However, Luster discloses a machine vision system in figure 7 and lines 34-67 of column 4, which includes a camera (30) coupled to a the image processing elements such as signal splitter (32), high pass filter (30) and image processing board (31). Luster further discloses the machine vision system further includes "input/output circuits to allow the system to communicate with external devices such as controller (not shown for controlling a motor such as stepper motor" (col. 4, lines 55-61). Luster further discloses "The machine vision system 40 may be programmed at a mass storage unit 60 to include custom controls for image processing and image analysis" (col. 5, lines 12-14). Luster further discloses that a host computer 62 of the system 40 may be a PC having sufficient amount of RAM and hard disk space for controlling the system (figure 7; col. 5, lines 15-17) which implies that the machine vision system can be controlled through a computer system that has hard disk and enough RAM. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Anderson in view of Luster. One would have been motivated to use the system of Anderson in machine vision applications as done by Luster because both references are directed to imaging and because Luster shows a specific application to which Anderson can be applied and it would be a matter of replacing the system of Luster with that of Anderson. Both references recite the use of

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camera for imaging which is further coupled to the image processing elements and both references recites a mass storage (memory) space which can store programs to program the system and both references teach that their systems can be connected to a host computer to control the system externally.

Claim 2 recites "the human/machine interface as set forth in claim 1 wherein the screen include buttons for selecting predetermined functions for at least one of installing, configuring, training, monitoring and controlling the machine vision system". Anderson teaches in lines 45-64 of column 10 and lines 60-65 of column 13 that the web page screen of the human/machine interface device can include control buttons for controlling.

Regarding **claim 3**, the limitations of **claim 3** are met by Anderson as applied to claim 1 above.

Regarding **claim 4**, the limitations of claim 4 are met by Anderson and Luster as applied to claim 1 above. Claim 4 also recites "the human/machine interface device comprises a personal digital assistant (PDA)" instead of a computer as in claim 1. Anderson discloses in lines 34-38 of column 9 that a human/machine interface device can be a personal computer, wireless PCS phone or a network computer and in fact these devices are capable of displaying image data and information in web-browser-compatible image format. Therefore, it would have been obvious to one having ordinary

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skill in the art at the time of the invention was made to modify the invention of Anderson. One would have been motivated to use a PDA in place of a computer, where PDA is a small hand-held computer which recites a hard disk and sufficient RAM and is capable of receiving wired and wireless signals and displaying image data and information in web-browser compatible form as human/machine interface device.

Claim 5 recites "the human/machine interface as set forth in claim 4 wherein the communication interface includes support for data transmission to a PDA over one of a wireless link and a cable link". Anderson in lines 64-65 of column 11 teaches the communication to the human/machine can be done through USB, IEEE1394 and infrared link where USB and IEEE1394 are cable links and infrared link is a wireless link.

Regarding the **claim 11**, the limitations of claim 11 are met by Anderson and Luster as applied to claim 4 above.

Claim 12 recites a method steps that correspond to the apparatus defined by claim 1, and is thus met by the combination of Anderson and Luster as applied to claim 1 above.

Claim 18 recites "the method as set forth in claim 12 further comprising communicating control information to a remote device through the communication

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interface so as to direct a device function in accordance with a predetermined instruction of the machine vision tool". Luster discloses that a host computer 62 of the system 40 may be a PC having sufficient amount of RAM and hard disk space for controlling the system (figure 7; col. 5, lines 15-17) which implies that the machine vision system can be controlled through a computer system that has hard disk and enough RAM and it would be obvious that a remote computer cannot control the system without a predetermined instruction of the machine vision tool on the remote PC.

Regarding the **claim 19**, the limitations of claim 19 are met by Anderson and Luster as applied to claim 12 above.

Claim 20 recites a method steps that correspond to the apparatus defined by claim 4, and is thus met by the combination of Anderson and Luster as applied to claim 1 above.

Regarding **claim 21**, the limitations of claim 21 in combination with claim 20 are met by Anderson and Luster as applied to claim 5 above.

Claim 24 has been similarly analyzed and rejected as per claim 18.

Regarding the **claim 28**, the limitations of claim 28 are met by Anderson and Luster as applied to claim 20 above.

4. Claims 6 and 23 are rejected under 103(a) as being unpatentable over Anderson U.S. Patent No. 6,567,122 in view of Luster, U.S. Patent No. 5,715,051 and further in view of Cadjan, January 2000, publication " Upgrading Novell Client software across the network using acu.exe".

Claim 6 recites "human/machine device, includes a generic machine vision application residing thereon and the processing element is adapted to install a specialized machine vision application over the communication interface to the human/machine interface device". Anderson in lines 52-55 of column 6 and lines 1-5 of column 7 discloses software programs to control the operations of the camera that are stored in the memory. Anderson also discloses in lines 36-43 of column 15 that parameters of these software applications running inside the camera can be changed according to the user needs. It is in fact clear from the above arguments that if a user wants to change parameters of application program running inside the apparatus according to his/her control needs, the user has to write some kind of script or some kind of program on another external computing device such as another computer, which then can be then transferred to the apparatus's memory through communication interface. The image apparatus will only understand this script if the image apparatus and external computing device share the same platform of the application in which the script was constructed or vice-versa. Therefore, it would be obvious that the same generic machine vision software application in which the script runs should be resided on both image apparatus and external computing device. Anderson and Luster do not

teach the limitation "the processing element is adapted to install a specialized machine vision application over the communication interface to the human/machine interface device".

Cadjan in her technical paper discloses a server/client model of Novell Network where the client gets upgraded automatically when client logs in to the network. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the invention of Anderson in view of Luster and in further view of Cadjan. One would have been motivated to host a file server in the image apparatus where the machine vision application resides and if a machine vision application was upgraded on the image apparatus, the server would install this special new/upgraded machine vision application on the client (PDA) automatically whenever client talks to the image apparatus.

Regarding the **claim 23**, the limitations of claim 23 in combination with claim 20 are met by Anderson and Luster and in further view of Cadjan as applied to claim 6 above.

5. Claims 7 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over, Anderson U.S. Patent No. 6,567,122 in view of Luster, U.S. Patent No. 5,715,051 and further in view of Takagi, U.S. Patent No. 6,670,991 and Bose, U.S. Patent No. 4,975,972.

Claim 7 recites "a machine vision process that determines an intensity distribution of the image data and that transmits information with respect to the determined intensity distribution, and wherein the human/machine interface device includes a process for displaying, based upon the information, a visual representation of the intensity distribution so as to assist in adjusting at least one of the lighting intensity, shutter exposure time, lens aperture, and parameters affecting the intensity distribution in the image data". Anderson and Luster do not teach the machine vision process that determines intensity distribution of the image data and transmits the information with respect to the determined intensity distribution.

Bose discloses a machine vision process in lines 22-30 of column 4 that determines an intensity distribution of the image data and the information with respect to intensity distribution can be displayed on a monitor (34). Bose does not teach of transmitting this information to another computer.

Takagi discloses of an image apparatus connected to a client computer in figure 7 and in lines 6-12 and 25-40 of column 5, lines 30-45 of column 6 and lines 10-14 of column 11 where all camera parameters can be displayed in visual representation on the client display and client with respect to displayed parameters has the capability to change the parameters. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the invention of Anderson in view of Luster and in further view of Bose and Takagi. One would have been motivated to use the image apparatus by Anderson in view of Luster in machine vision systems where one would have used the machine vision process used by Bose to determine the intensity

distribution of the image data and one would have used the method described by Takagi to display the parameters on the client display where client can be any human/machine interface device such a computer or a PDA and client as described by Takagi can be used to change the parameters according to the user needs.

Regarding the **claim 25**, the limitations of claim 25 in combination with claim 20 are met by Anderson and Luster and in further view of Bose as applied to claim 7 above.

6. Claims 8, 9, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over, Anderson U.S. Patent No. 6,567,122 in view of Luster, U.S. Patent No. 5,715,051 and further in view of Takagi, U.S. Patent No. 6,670,991 and Bose, U.S. Patent No. 5,040,228.

Claim 8 recites "a machine vision process that determines a relative degree of focus of the image data and that transmits encoded information with respect to the determined relative degree of focus, and wherein the human/machine interface device includes a process for displaying, based upon the encoded information, a current focus value so as to assist in adjusting focus". Anderson and Luster does not teach the machine vision process that determines a relative degree of focus of the image data and transmits the encoded information with respect to the determined relative degree of focus.

Bose discloses a machine vision process in lines 1-20 of column 2 that determines the sharpness of focus of the image data and the information with respect to determined sharpness of focus could be displayed on a monitor. Bose does not teach of transmitting this information to another computer.

Takagi in figure 7 and in lines 6-12 and 25-40 of column 5, lines 30-45 of column 6 and lines 10-14 of column 11 discloses of an image apparatus connected to a client computer where all camera parameters can be displayed as a function of time, distance and frequency etc., in visual representation on the client display and client with respect to displayed parameters has the capability to change the parameters. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the invention of Anderson in view of Luster and in further view of Bose and Takagi. One would have been motivated to use the image apparatus by Anderson in view of Luster in machine vision systems where one would have used the machine vision process used by Bose to determine the relative degree of focus of the image data and one would have used the method described by Takagi to display the parameters on the client display where a client can be a human/machine interface device such as a computer or a PDA and client as described by Takagi can change the parameters according to the user needs.

Regarding the **claim 9**, the limitations of claim 9 are met by Anderson and Luster in further view of Bose and Takagi as applied to claim 8 above.

Regarding the claims 26 and 27, the limitations of claims 26 and 27 in combination with claim 20 are met by Anderson and Luster and in further view of Bose as applied to claim 8 above.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson, U.S. Patent No. 6,567,122 in view of Luster, U.S. Patent No. 5,715,051 and further in view of Yu, U.S. Patent No. 6,804,418.

Claim 10 recites "human/machine interface device includes a display that is insufficient in resolution and refresh rate to provide a real time display for adjusting either of focus or aperture of lens of the image element". From the previous explained claims a PDA is used as human/machine interface device. Anderson and Luster do not teach about the resolution and refresh rate of the PDA.

Yu discloses in lines 10-15 of column 1, in lines 1-10 of column 2 and lines 45-50 of column 2 PDA display panels do not have sufficient resolution to display high-resolution images and discloses the technique for generating low-resolution images from the high-resolution images for the PDAs. A lower resolution and a lower refresh rate are the inherent properties of the PDA due to the compact size, low power operation and lower processing speed.

8. Claims 13, 14, 15, 16, 17, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over, Anderson U.S. Patent No. 6,567,122 in view of Luster, U.S. Patent No. 5,715,051 and further in view of Nichani, U.S. Patent No. 5,673,334.

Claims 13, 14 and 15 recites "the method of transferring configuration information from the human/machine interface device to the memory over the communications interface, wherein the step of transferring configuration information includes providing training information to the memory and wherein the step of displaying includes monitoring a live image acquired by the image element based upon the image data and information". Anderson and Luster do not teach anything about configuring or providing the training to the memory of image device.

Nichani discloses a machine vision system in lines 40-50 of column 5, which is trained by an operator by transferring a training model program to the memory of the machine vision system to configure the system for future operations. Nichani also discloses in lines 9-21 of column 6 that displaying includes monitoring a live image acquired by the image element based upon the image data and information. It would have been obvious to one having an ordinary skill in the art at the time of invention was made to modify the combined invention of Anderson and Luster in further view of Nichani. One would have been motivated to store a configuration or training program in the memory to configure the system for control operations:

Claim 16 recites "a method which comprises (a) establishing a link between the human/machine interface device and the communications interface, (b) at least one of installing, configuring, training or monitoring the machine vision systems by exchanging information over the link and (c) removing the link". The limitations "(a) establishing a link between the human/machine interface device and the communications interface,

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and (c) removing the link” recited in claim 16 are rejected on the basis of rejection of claim 12. Anderson in combination with Luster does provide a machine vision system interface to connect to a human/machine interface device through a communication interface. Anderson combined with Luster does not teach of the limitation “(b) at least one of installing, configuring, training or monitoring the machine vision systems by exchanging information over the link”. Nichani as explained in rejection for claim 14, 15 and 16 provides a method for configuring the machine vision system by exchanging information over the link.

Claim 17 recites “the method as set forth in claim 16 wherein the step of establishing the link comprises web pages on the human/machine interface based upon a web server in the machine vision system that interacts with the communication interface to convert the image data and information into web-based data packets”. The limitations of claim 17 are met by Anderson and Luster as applied to claim 12 above.

Regarding the claim 22, the limitations of claim 22 in combination with claim 20 are met by Anderson and Luster and in further view of Nichani as applied to claim 16 above.

Response to Arguments

9. Applicant's arguments regarding the prior art rejections under Anderson and Favreau on 1st and 2nd paragraph of page 11 of the Amendment filed on 12 April 2005 have been fully considered. Applicant's arguments, regarding the prior art rejection under Favreau belonging to the same assignee, does not provide enough legal evidence to overcome the rejections under Anderson and Favreau but in order to expedite the examining process examiner withdraws the prior art rejection under Favreau. All the claims have been re-examined by the examiner and rejected as shown before in this office action.

10. In the 3rd paragraph on page 11 of the Amendment, Applicant argues in substance:

a. There is no teaching or suggestion in Anderson that the camera/interface can be used in a machine vision system. Rather this camera is basically a form of "web" camera that can be used for any purpose.

The Examiner respectfully disagrees. As discussed in rejection of claim 1 of this office action, Anderson provides a camera that recites image processing elements along with a mass storage device (memory) that is programmed to be used as an application server and this application server can be accessed by outer world through wired or wireless ports. As well known in the art and in view of Luster, a machine vision system is a machine that has a camera to view the object and perform image processing on the images taken by it and reproduce the images for analysis and these

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all functions are performed by Anderson's system and Luster provides the machine vision system similar to that of the system provided by Anderson, therefore it would be obvious for one of ordinary skill in the art at the time of invention was made to use Anderson's system in machine vision applications. All supporting arguments have been explained in detail in the rejection of claim 1.

Conclusion


11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Sternberg, U.S. Patent No. 4,641,356, discloses an apparatus and method for implementing dilation and erosion transformations on grayscale image processing using a machine vision system.
- Robinson, U.S. Patent No. 5,821,993 discloses a method and system for automatically calibrating a color camera in a machine vision system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manav Seth whose telephone number is (571) 272-7456. The examiner can normally be reached on Monday to Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's trainer, Joseph Mancuso, can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Manav Seth
Art Unit 2625
May 11, 2005



JOSEPH MANCUSO
PRIMARY EXAMINER